

Laucks ⁸¹ YEARS

Testing Laboratories, Inc.

940 South Harney St., Seattle, WA 98108 (206) 767-5060 FAX 767-5063

Certificate

Chemistry, Microbiology and Technical Services

CLIENT: Alaskan Copper Works
P.O. Box 3546
Seattle, WA 98124
ATTN: Jim Brown

LABORATORY NO. 17801

DATE: Aug. 10, 1989

PO# M11001

REPORT ON: WATER

SAMPLE

IDENTIFICATION: Submitted 08/01/89 and identified as shown below:

- 1) 7-31-3200-M11001A
- 2) 7-31-3200-M11001B

TESTS PERFORMED AND RESULTS:

parts per million (mg/L)

	<u>1</u>	<u>2</u>
Chromium	3.0	1.8
Copper	4.4	3.4
Nickel	3.6	3.4
Zinc	0.36	0.22

Respectfully submitted,

Laucks Testing Laboratories, Inc.

B. Gleason

BG:emt



This report is submitted for the exclusive use of the person, partnership, or corporation to whom it is addressed. Subsequent use of the name of this company or any member of its staff in connection with the advertising or sale of any product or process will be granted only on contract. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

AKC-0014943



Testing Laboratories, Inc.

940 South Harney St., Seattle, WA 98108 (206) 767-5060 FAX 767-5063



Certificate

Chemistry, Microbiology, and Technical Services

CLIENT: Alaskan Copper Works
P.O. Box 3546
Seattle, WA 98124
ATTN: Jim Brown

LABORATORY NO. 17785

DATE: Aug. 9, 1989

PO# M10994

REPORT ON: WATER

SAMPLE

IDENTIFICATION: Submitted 07/31/89 and identified as shown below:

- 1) 7-6-3200-M10994
- 2) 7-11-3200-M10994
- 3) 7-13-3200-M10994
- 4) 7-18-3200-M10994
- 5) 7-20-3200-M10994
- 6) 7-25-3200-M10994
- 7) 7-27-3200-M10994

TESTS PERFORMED AND RESULTS:

parts per million (mg/L)

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Chromium	7.2	15.	7.4	2.5	32.
Copper	4.4	5.8	2.8	1.1	9.0
Nickel	7.4	15.	6.3	4.3	28.
Zinc	0.24	0.26	0.14	0.080	0.024



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AKC-0014944

Laucks ⁸¹ YEARS

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Certificate

Chemistry, Microbiology, and Technical Services

Alaskan Copper Works

PAGE NO. 2

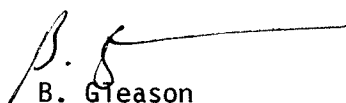
LABORATORY NO. 17785

parts per million (mg/L)

	<u>6</u>	<u>7</u>
Chromium	1.3	1.8
Copper	0.58	0.56
Nickel	2.1	1.4
Zinc	0.046	0.038

Respectfully submitted,

Laucks Testing Laboratories, Inc.


B. Gleason

BG:emt



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AKC-0014945

Laucks ⁸¹ years

Testing Laboratories, Inc.

940 South Harney St., Seattle, WA 98108 (206) 767-5060 FAX 767-5063

Chemistry, Microbiology, and Technical Services



Certificate

CLIENT: Alaskan Copper Works
P.O. Box 3546
Seattle, WA 98124
ATTN: Jim Brown

LABORATORY NO. 17786

DATE: Aug. 9, 1989

PO# M10993

REPORT ON: LIQUID

SAMPLE

IDENTIFICATION: Submitted 07/31/89 and identified as shown below:

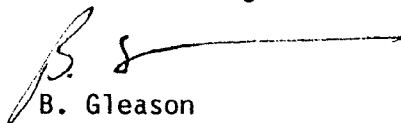
7-31-3200-M10993

TESTS PERFORMED AND RESULTS:

	<u>Sample</u>
Specific Gravity at 25°C	1.218
Total Acidity, calculated as % HNO ₃ (methyl orange end point)	6.4

Respectfully submitted,

Laucks Testing Laboratories, Inc.


B. Gleason

BG:emt



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AKC-0014946



Testing Laboratories, Inc.

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Certificate

Chemistry, Microbiology and Technical Services

Alaskan Copper Works

PAGE NO. 2

LABORATORY NO. 17785

parts per million (mg/L)

	<u>6</u>	<u>7</u>
Chromium	1.3	1.8
Copper	0.58	0.56
Nickel	2.1	1.4
Zinc	0.046	0.038

Respectfully submitted,

Laucks Testing Laboratories, Inc.

B. Gleason

BG:emt



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AKC-0014947

Laucks ⁸¹ years

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Certificate

Chemistry, Microbiology, and Technical Services

Alaskan Copper Works

PAGE NO. 2

LABORATORY NO. 17785

parts per million (mg/L)

	<u>6</u>	<u>7</u>
Chromium	1.3	1.8
Copper	0.58	0.56
Nickel	2.1	1.4
Zinc	0.046	0.038

Respectfully submitted,

Laucks Testing Laboratories, Inc.

B. Gleason

BG:emt



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AKC-0014948



Waste Discharge Self Monitoring Report

(Report On Only Those Parameters Specified By Your Permit)

Mail to: Metro, Industrial Waste Section
821 Second Avenue, M.S. #1, Seattle, WA 98104

Company Name ALASKAN COPPER WORKS-6th AVE. SOUTH

Permit No. 7238

Station No. A4010

Month JULY

19 89

No. of Employees (per day) Average _____

Maximum _____

Site No. N/A

All units mg/l unless otherwise noted

Industry Type _____

SAMPLE DATES (Circle)	SAMPLE TYPE (Dist., Composite, or Grab)	pH		SETTABLE SOLIDS (ml/l)	OIL & GREASE	Arsenic, As	Aluminum, Al	Cadmium, Cd	Chromium, Cr (Total)	Copper, Cu	Lead, Pb	Mercury, Hg	Nickel, Ni	Selenium, Se	Silver, Ag	Zinc, Zn	Total Metals	Cyanide, CNA	Cyanide, CNT	Fluoride, F	Phosphorus, P	TTO	Flow (GPD) Total	Flow (GPD) Industrial	Flow (GPD) Other	Comment and Explanation of Any Violations
		MIN	MAX																							
1																										
2																										
3																										
4																										
5																										
6																										
7																										
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29																										
30																										
31																										
Min																										
Max																										
Average																										

Please Circle all Permit Violations

I certify that I am familiar with the information contained in this report and that to the best of my knowledge such information is true, complete and accurate. I am aware of significant penalties for submitting false information.

James C. Brown
Signature of Principal Executive or Authorized Agent

Comments: _____

*the automatic system
was changed to new
equipment during this
time frame. All
equipment except
the flow system
monitor is operational*



Waste Discharge Self Monitoring Report

(Report On Only Those Parameters Specified By Your Permit)

Mail to: Metro, Industrial Waste Section
821 Second Avenue, M.S. 7, Seattle, WA 98104
LAB

DMR

AKC-0014950

Company Name ALASKAN COPPER WORKS-E. MARGINAL WAY

Permit No. 7201

Station No. A4009

Month JULY

19 89

Site No. N/A

No. of Employees (per day) Average _____ Maximum _____

All units mg/l unless otherwise noted

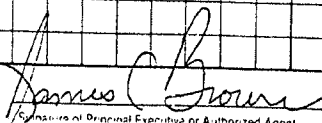
Industry Type _____

SAMPLE DATES (Circle)	SAMPLE TYPE (Daily, Composite, or Grab)	pH		SETTLABLE SOLIDS (ml/l)	OIL & GREASE	Arsenic, As	Aluminum, Al	Cadmium, Cd	Chromium, Cr (Total)	Copper, Cu	Lead, Pb	Mercury, Hg	Nickel, Ni	Selenium, Se	Silver, Ag	Zinc, Zn	Total Metals	Cyanide, CNA	Cyanide, CNT	Fluoride, F	Phosphorus, P	TSS	Flow (GPD) Total	Flow (GPD) Industrial	Flow (GPD) Other	Comment and Explanation of Any Violations
		MIN	MAX																							
1																										
2																										
3																										
4																										
5																										
6																										
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29																										
30																										
31																										
Min																										
Max																										
Average																										

NOT IN USE

Please Circle all Permit Violations

I certify that I am familiar with the information contained in this report and that to the best of my knowledge such information is true, complete and accurate. I am


James Brown
Responsible Principal Executive or Authorized Agent

Comments: _____

ALASKAN COPPER CO.

WEEKLY EFFLUENT REPORT FOR 3200 6th ave. s.

starting date 6/26/89Technician RaphaelEnding date 7/3/89TOTAL NUMBER OF GALLONS USED.
CAUSTIC - 2.1 x 1.7357 - WEEKLY.BARRELL MONITOR IN INCHES. 11.0 - 9.0 = 2.1MondayDRAINED & Cleaned Hoppers
Checked PH of Hoppers
Checked PH of Sumps
Took readings
Reset Cycle readings
Reset flow meter
Cleaned Area

2000. +

TUESDAYDRAINED & CLEANED Hoppers
Checked PH of Hoppers & Sumps
Checked Caustic level
Took readings
Blowdown Boiler

1000. +

500. +

WEDNESDAYDrained and Cleaned Hoppers
Checked PH of Hoppers
Checked PH of Sumps
Checked Caustic levels/floc level
Blowdown boiler
Took Records, Clean area

	MON	TUE	WED	THU	FRI
CYCLES.	52	0	0	0	
DAILY INCHES	11	9.5	9.0	9.0	
HOPPER A pH.	10.0	5	7.0	7.0	10
HOPPER B pH.	11.0	5	7.0	7.0	10
Beta	24	15	11/32 Ref	26	32 Ref

THURSDAYChecked PH of Hoppers
Checked PH of Sumps
Drained & Cleaned Hoppers
Checked Caustic level
Checked floc level
Blowdown boiler
Took RecordsFRIDAYNo readings
Flow meter not working~~Caustic on Barrell monitor removed~~

	TIME	CAUSTIC	(1.7)	FLOC LEVEL	PH-Reading		PH-Paper		FLOWMETER	CYCLES	SAMPLE I.D.	PH-Paper							
					SUMP A	SUMP B	SUMP A	SUMP B				HOPPER A	HOPPER B						
MON. 6-26-89	7:30a	17.0		32	7.0	10.0		10.0	1445	73	/	10.0	10.0						
	3:30p	15.0		28.0	7.0	10.0	8	11.0	110	4	/	11.0	11.0						
	11:30p			26	8.0	6.0	14.	14.	110	30	2330	14	14.						
TUES. 6-27-89	7:30a	11.0		24	10.0	/	14.0	11.0	110	52	7.00 AM	10.0	11.0						
	3:30p	/		21.0	4	/	/	11.0	/	/	2.00 PM	11.0	11.0						
	11:30p						/				/								
WED. 6-28-89	7:30a	9.5		15	4	/		5	/	/	/	5.0	5.0						
	3:30p																		
	11:30p			11	8	6.5	4.	4.0	02	0	2330	4.	4.						
THUR. 6-29-89	7:30a			32 Refil	/	/	7.0	7.0	/	/	7.00 AM	7.0	7.0						
	3:30p			30	/	/	7.0	7.0	/	/	2.00 PM	7.0	7.0						
	11:30p			28	8	6.5	7.	7.	06	4	2345	7.	7.						
FRI. 6-30-89	7:30a	9.0		26	/	/	/	7.0	/	/	7.30 AM	7.0	7.0						
	3:30p			21	/	/	7.	7.	06										
	11:30p			21	8	6.		7.	06	14	2350	7.	7.						

6/28/89 Calibration of system in progress. Manual operation utilized. Automation still in progress. No records, Manual operation encourage because of electronic backup PH-ready not taken using PH-paper.

ALASKAN COPPER CO.
WEEKLY EFFLUENT REPORT FOR 3200 6th ave. s.

starting date 7/3/89

Ending date 7/10/89

Technician Raphael

TOTAL NUMBER OF GALLONS USED.
CAUSTIC - 2.5 x 1.7425 = WEEKLY.

1 + 1.5 = 2.5

BARRELL MONITOR IN INCHES.

8.0 - 6.5 = 1.5
11.0 - 10.0 = 1.0
1.5 + 1.0 = 2.5

Monday

2000. +

1500. +

1000. +

500. +

HOL. DAY

NO READINGS FOR Flowmeter

TUESDAY

DRAIN & CLEAN Hoppers
check PH of Hoppers
check PH of Sumps
Took Records
Blowdown Boiler
Clean Area. → Flowmeter not in operation

WEDNESDAY

Drain & Clean ~~Hoppers~~
check PH of Hoppers
check PH of Sumps
Took Records
Blowdown Boiler
Clean Surrounding.

CYCLES.
DAILY INCHES
HOPPER A pH.
HOPPER B pH.

Betaflex

	MON	TUE	WED	THU	FRI
CYCLES.		0	0	0	0
DAILY INCHES		8	7	6.5/11	10.0
HOPPER A pH.		10	8	5	5
HOPPER B pH.		10	8	5	5
		32	23	14	28

THURSDAY

Check PH of Hoppers
check PH of Sumps
Drain and Clean Hoppers
Took Records
Blowdown Boiler
Clean Surrounding

FRIDAY

Check PH of Hoppers
check PH of Sumps
Drain & Clean Hoppers
Took Records
Blowdown Boiler
Clean Surrounding



Testing Laboratories, Inc.

940 South Harney St., Seattle, WA 98108 (206) 767-5060 FAX 767-5063

Certificate

Chemistry, Microbiology, and Technical Services

CLIENT: Alaskan Copper Works
P.O. Box 3546
Seattle, WA 98124
ATTN: Jim Brown

LABORATORY NO. 17561

DATE: July 28, 1989

PO# M10798

REPORT ON: LIQUID

SAMPLE

IDENTIFICATION: Submitted 07/17/89 and identified as shown below:

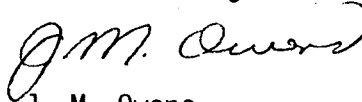
7-17-3200-M10798

TESTS PERFORMED AND RESULTS:

	<u>Sample</u>
Specific Gravity at 25°C	1.214
Total Acidity, calculated as % HNO ₃ (methyl orange end point)	6.5

Respectfully submitted,

Laucks Testing Laboratories, Inc.


J. M. Owens

JMO:emt



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AKC-0014954

	TIME	CAUSTIC	(1.7)	FLOC LEVEL	PH-Reading		PH-Paper		FLOWMETER	CYCLES	SAMPLE I.D.	PH-Paper							
					SUMP A	SUMP B	SUMP A	SUMP B				HOPPER A	HOPPER B						
MON. 7-3-89	7:30a	8		32.0		11.0		11.0	/	/	/	11.0	11.0						
	3:30p	8		32.0		11.0		11.0	/	/	/	11.0	11.0						
	11:30p																		
TUES. 7-4-89	7:30a																		
	3:30p																		
	11:30p																		
WED. 89 5' 7'	7:30a	8		32	/	10	/	10	/	/	/	10	10						
	3:30p			27	/	/	11.0	11.0	/	/	/	11.0	11.0						
	11:30p			27	8	7	4	4	6	10	23:00	4	4						
THUR. 7-6-89	7:30a	7		23	/	/	/	8	/	/	7:30 AM	8	8						
	3:30p										12:00 PM								
	11:30p			16.5	8	6.5	4	4	05	4	23:10	4	4						
FRI. 7-7-89	7:30a	6.5		14.0	/	/		5	/	/	/	5	5						
	3:30p	11.0		10.0	/	/	11.0	6	/	/	/	7	11.0						
	11:30p	10		10	8	6.5	4	4	4	03	23:18	4	4						

7/3/89
Metro Pump was Pumped
and cleaned.
Process Pump was also Pumped
and cleaned.

ALASKAN COPPER CO.
WEEKLY EFFLUENT REPORT FOR 3200 6th ave. s.

starting date 7/10/89

Ending date 7/17/89

Technician Raphael

TOTAL NUMBER OF GALLONS USED.
CAUSTIC - 3 x 1.7 5.1 - WEEKLY.

BARRELL MONITOR IN INCHES.

11.00 - 8.0 = 3.00
2768 2194

Monday

Checked PH of Hoppers
Check PH of Sumps
Drain and Clean Hoppers
Took Records
Check Boiler
Check Caustic level
Check Betaflo level

2000. +

1500. +

TUESDAY

Drain Hoppers
Check PH of Sumps
Check PH of Hoppers
Check Caustic level
Check Betaflo level
Clean surroundings

1000. +

500. +

WEDNESDAY

Check PH of Hoppers
Check PH of Sumps
Drain & Clean Hoppers
Check Caustic level
Check Betaflo level
Took Records
Clean surroundings

	+	MON	TUE	WED	THU	FRI
CYCLES.		0	0		8	5
DAILY INCHES		11	9	8	7	8
HOPPER A pH.		7	5	8	7	5
HOPPER B pH.		7	5	8	7	5
BETA		21	13	8 3/2	28	13.5

THURSDAY

Check PH of Sumps
Check PH of Hoppers
Drain & Clean Hoppers
Check Caustic levels
Check Betaflo levels
Took Records
Clean surroundings

FRIDAY

checked PH of Hoppers
checked PH of Sumps
Drain & Clean Hoppers
Check Caustic level
Check Betaflo levels
Took Records
Clean surroundings

MON.	TIME	CAUSTIC	(1.7)	FLOC LEVEL	PH-Reading PH-Paper				FLOWMETER	CYCLES	SAMPLE I.D.	PH-Paper	
					SUMP A	SUMP B	SUMP A	SUMP B				HOPPER A	HOPPER B
MON. 1-10-81	7:30a	10.0		29.0	/	/	4	4	/	/	/	4	4
	3:30p			26			/	8	?	?	/	8	8
	11:30p	?		24	8.	6.5	4	8	0525	23	230	8	8
TUES. 1-11-81	7:30a	10		21.0	/	/	/	7	/	/	120	7	7
	3:30p			18.0	/	/	11.0		1631	/	2.00 pm		
	11:30p			15	/	/	14	6	2335	10	2340	/	/
WED. 1-12-81	7:30a	9		13	/	/	5		2764	/	/	5	5
	3:30p												
	11:30p			8	8	1.5	5	5	2962	16	2315	5	5
THUR. 1-13-81	7:30a			8	/	/	/	5	2104	20	730 AM	5	5
	3:30p	8		5/2	/			11.0	1531	5	2300	11.0	11.0
	11:30p			29.5	8.	6.5	5.	11.	2415	6.	0321	11.	11.
FRI. 1-14-81	7:30a	8		28			6	8	1281	8	/	8	8
	3:30p												
	11:30p												

Effluent Control still being repaired - Manual of in process.

ALASKAN COPPER CO.
WEEKLY EFFLUENT REPORT FOR 3200 6th ave. s.

starting date 7/17/89

Ending date 7/24/89

Technician Raphael

TOTAL NUMBER OF GALLONS USED.
CAUSTIC - 5.5 x 1.79.35 - WEEKLY.

BARRELL MONITOR IN INCHES. 24.5 - 19.0 = 5.5

3062

Monday

check PH of Sumps
check PH of Hoppers
Drain + Clean Hoppers
check Caustic levels
check Betafloc levels
took records & reset
~~level~~ readings
clean surrounding

2000. + ~~2735~~ ~~2193~~ ~~2185~~ ~~2098~~

TUESDAY

Drain + Clean Hoppers
check PH of Sumps + Hoppers
check Caustic levels
check Betafloc levels
took records + clean area

1000. +

500. +

WEDNESDAY

DRAIN + CLEAN HOPPERS
check PH of Hoppers +
check PH of Sumps
check Caustic levels
check Betafloc levels
clean screen
took records

	MON	TUE	WED	THU	FRI
CYCLES.	7	8	13	7	122
DAILY INCHES		6.5/24.5	21.5		19.0
HOPPER A PH.	6	7.0	9.0	7.0	10.0
HOPPER B PH.	6	7.0	9.0	7.0	10.0
Beta.	32	28	24.5	22.0	29.0

THURSDAY

Took Records
check PH of Hoppers
check PH of Sumps
check Betafloc level
check Caustic level

FRIDAY

Took records
check PH of Sumps
check PH of Hoppers
check Betafloc level
Reset Protons
clean surroundings
Reset Controller
Blowdown Boiler

	TIME	CAUSTIC	(1.7)	FLOC LEVEL	PH-Reading		PH-Paper		FLOWMETER	CYCLES	SAMPLE I.D.	PH-Paper							
					SUMP A	SUMP B	SUMP A	SUMP B				HOPPER A	HOPPER B						
MON. 7-24-89	7:30a	8		13.5	/	/	5	5	2194	5	/	5	5						
	3:30p																		
	11:30p			10	8	6.5	5	5	1415	01	/	5	5						
TUES. 7-25-89	7:30a	7.0		32	/	/	6	6	2135	7	1.20 AM	6	6						
	3:30p			32	X	X													
	11:30p			31.8	/	/	6	6	0375	0	2310	6	6						
WED. 7-26-89	7:30a	6.5		28	/	/	/	7	2190	/	/	7	7						
	3:30p	27.0 4.1		26	/	/	/	11.0	?	6	/	11.0	11.0						
	11:30p	?		26	/	/	/	11.0	192	8	/	11.0	11.0						
THUR. 7-27-89	7:30a	20.5		24.5	/	/	/	9.0	2185	6	7.00 AM	9.0	9.0						
	3:30p	23.5		24	/	/	/	11.0	1022	5	2.00 PM	11.0	11.0						
	11:30p			23	8	6.5	5	5	1343	5	2345	5	5						
FRI. 7-28-89 N	7:30a			22.0	4.2		7.0	4.0	2098	7	/	7	7						
	3:30p																		
	11:30p	?		22.8	8.	6.5	/	/	1177	99	2300	7	7						

Process monitor is not working
 Output Monitor is not working.
 Only the flow meter is working.
 Manual Neutral in Progress
 7/19/89 - Okite spillage in
 afternoon.